

What is claimed is:

- 1) An electrical generation system comprising:
  - a) electrical circuit means for utilizing electrical power;
  - b) connected to said electrical circuit means, Stirling-cycle power means for using the mechanical output of at least one Stirling cycle to produce electrical power;
  - c) holding means for holding environmentally hazardous waste oils;
  - d) combustion heat means for producing combustion heat by burning such environmentally hazardous waste oils;
  - e) waste oil transfer means for transferring such environmentally hazardous waste oils from said holding means to said combustion heat means; and
  - f) primary heat transfer means for transferring of such combustion heat to said Stirling-cycle means;
  - g) wherein said primary heat transfer means is in operational communication with said combustion heat means; and
  - h) wherein such environmentally hazardous waste oils may be converted to electrical power.
- 2) The system according to Claim 1 wherein said electrical circuit means comprises electrical network means for linking to at least one larger electrical grid.
- 3) The system according to Claim 2 wherein said electrical network means further comprises electrical controller means for controlling electrical power within said electrical network means.
- 4) The system according to Claim 3 wherein said electrical controller means is structured and arranged to control electrical power flowing between said electrical network means and the at least one larger electrical grid.
- 5) The system according to Claim 3 wherein:
  - a) said electrical network means further comprises electrical storing means for storing electrical power; and
  - b) said electrical controller means is structured and arranged to control at least one transfer of electrical power between said electrical storing means and said electrical network means.

- 6) The system according to Claim 1 further comprising secondary heat transfer means for transferring at least one portion of the combustion heat to at least one heatable fluid.
- 7) The system according to Claim 6 wherein said secondary heat transfer means is structured and arranged to transfer heat to air, usable for space heating.
- 8) The system according to Claim 6 wherein the heatable fluid comprises at least one liquid.
- 9) The system according to Claim 1 wherein said holding means comprises collector means for collecting of such environmentally hazardous waste oils.
- 10) The system according to Claim 1 wherein said combustion heat means comprises:
  - a) atomizer means for atomizing such environmentally hazardous waste oils prior to combustion; and
  - b) igniter means for igniting such environmentally hazardous waste oils after such environmentally hazardous waste oils have passed through said atomizing means.
- 11) The system according to Claim 1 wherein said waste oil transfer means comprises:
  - a) pump means for pumping such environmentally hazardous waste oils from said holding means to said combustion heat means;
  - b) flow volume regulator means for regulating the flow volume of such environmentally hazardous waste oils pumped from said holding means to said combustion heat means; and
  - c) pre-heater means for preheating such environmentally hazardous waste oils prior to burning.
- 12) An electrical generation system comprising:
  - a) at least one electrical circuit structured and arranged to utilize electrical power;
  - b) connected to said at least one electrical circuit, at least one Stirling-cycle engine structured and arranged to use the mechanical output of at least one Stirling cycle to produce electrical power;
  - c) at least one holder structured and arranged to hold environmentally hazardous waste oils;

- d) at least one combustion heater structured and arranged to produce combustion heat by burning such environmentally hazardous waste oils;
  - e) at least one waste oil transfer component structured and arranged to transfer such environmentally hazardous waste oils from said at least one holder to said at least one combustion heater; and
  - f) at least one primary heat exchanger structured and arranged to transfer such combustion heat to said at least one Stirling-cycle engine;
  - g) wherein said at least one primary heat exchanger is in operational communication with said at least one combustion heater; and
  - h) wherein such environmentally hazardous waste oils may be converted to electrical power.
- 13) The system according to Claim 12 wherein said at least one electrical circuit comprises at least one electrical network to at least one larger electrical grid.
- 14) The system according to Claim 13 wherein said at least one electrical network further comprises at least one electrical controller structured and arranged to control electrical power within said at least one electrical network.
- 15) The system according to Claim 13 wherein said at least one electrical controller is structured and arranged to control electrical power flowing between said at least one electrical network and the at least one larger electrical grid.
- 16) The system according to Claim 13 wherein:
- a) said at least one electrical network further comprises at least one electrical storage device structured and arranged to store electrical power; and
  - b) said at least one electrical controller is structured and arranged to control at least one transfer of electrical power between said at least one electrical storage device and said at least electrical network.
- 17) The system according to Claim 12 further comprising at least one secondary heat exchanger structured and arranged to transfer at least one portion of the combustion heat to at least one heatable fluid.
- 18) The system according to Claim 17 wherein said at least one secondary heat exchanger is structured and arranged to transfer heat to air, usable for space heating.

- 19) The system according to Claim 17 wherein the heatable fluid comprises at least one liquid.
- 20) The system according to Claim 12 wherein said at least one holder comprises at least one collector structured and arranged to assist in collecting such environmentally hazardous waste oils.
- 21) The system according to Claim 12 wherein said at least one combustion heater comprises:
  - a) at least one atomizer structured and arranged to atomize such environmentally hazardous waste oils prior to combustion; and
  - b) at least one igniter adapted to ignite such environmentally hazardous waste oils after such environmentally hazardous waste oils have passed through said at least one atomizer.
- 22) The system according to Claim 17 wherein:
  - a) such combustion heat produced by said at least one combustion heater comprises at least one directed heat flow;
  - b) at least one portion of said at least one primary heat exchanger is positioned to be in thermal communication with such at least one directed heat flow; and
  - c) said at least one primary heat exchanger is structured and arranged to direct at least one portion of such at least one directed heat flow to at least one portion of said at least one secondary heat exchanger.
- 23) The system according to Claim 12 wherein said at least one waste oil transfer component comprises:
  - a) at least one pump to pump such environmentally hazardous waste oils from said at least one holder to said at least one combustion heater;
  - b) at least one flow volume regulator adapted to regulate the flow volume of such environmentally hazardous waste oils pumped from said at least one holder to said at least one combustion heater; and
  - c) at least one pre-heater structured and arranged to preheat such environmentally hazardous waste oils prior to burning.

- 24) The system according to Claim 12 further comprising:
- a) at least one power producing site having at least one said electrical circuit, and at least one operation to generate such environmentally hazardous waste oils;
  - b) wherein the at least one operation is performed within the power producing site;
  - c) wherein at least one said electrical circuit generates electrical power and at least one useful form of usable energy selected from the group consisting of:
    - i) heated air,
    - ii) heated liquid,
  - d) wherein said at least one combustion heater has a maximum capacity of not more than 0.5 million BTU input per hour; and
  - e) wherein combustion gasses produced by the combustion of such environmentally hazardous waste oils is vented to the outside air.
- 25) The system according to Claim 24 wherein the at least one operation comprises collection of the waste oil from at least one non-commercial source.
- 26) A method for economically disposing of waste oil comprising the steps of:
- a) collecting environmentally hazardous waste oils;
  - b) combusting such environmentally hazardous waste oils to produce usable heat energy; and
  - c) using such usable heat energy to power at least one Stirling-cycle engine;
  - d) using the output from such Stirling-cycle engine to generate useful electrical power.
- 27) The method according to Claim 26 further comprising using surplus usable heat energy from combusting such environmentally hazardous waste oils for on-site heating uses.
- 28) The method according to Claim 26 further comprising the initial step of collecting such environmentally hazardous waste oils from at least one off-site, non-commercial, waste oil source.
- 29) The method according to Claim 26 further comprising the step of selling at least one portion of such useful electrical power using at least one electrical grid connection.